

THAT WHICH IS CLAIMED:

1. A longitudinal adjuster for a vehicle seat, the longitudinal adjuster comprising:
 - 5 a first seat rail, a second seat rail that can be slid lengthwise relative to the first seat rail, and at least one locking element movably borne in the second seat rail, with the locking element reaching outward at least in predetermined areas through openings of the second seat rail and cooperating with notches of the first seat rail to lock the longitudinal adjuster, wherein at least one marginal layer of the locking element is softer than at least one marginal area selected from the group consisting of:
 - 10 a marginal area of the second seat rail, wherein the marginal area of the second seat rail borders the openings, and
 - a marginal area of the first seat rail, wherein the marginal area of the first seat rail borders the notches.
- 15 2. A longitudinal adjuster according to Claim 1, wherein the marginal layer of the locking element is softer than a core of the locking element.
- 20 3. A longitudinal adjuster according to Claim 2, wherein the marginal layer of the locking element contains less carbon per unit area than the core of the locking element.
- 25 4. A longitudinal adjuster according to Claim 1, wherein the locking element comprises a plate having pairs of teeth respectively reaching through the openings of the second seat rail for interacting with the notches of the first seat rail.
- 30 5. A longitudinal adjuster according to Claim 4, wherein at least some of the teeth are arranged in a longitudinal series having outer teeth which are respectively at ends of the series and inner teeth which are positioned between the outer teeth, and at least one tooth of the outer teeth differs in width from the inner teeth.
6. A longitudinal adjuster according to Claim 5, wherein:
the longitudinal series is a first series;

at least some of the teeth are arranged in a longitudinal second series having:
outer teeth which are respectively at ends of the second series, and
inner teeth which are positioned between the outer teeth of the second
series;

5 at least one tooth of the outer teeth of the second series differs in width from
the inner teeth the second series; and
 the at least one tooth of the first series is opposite from the at least one tooth of
the second series.

10 7. A longitudinal adjuster according to Claim 1, wherein for at least one
opening of the openings in the second seat rail, the marginal area of the second seat
rail comprises a guide surface which borders the at least one opening for guiding the
locking element into the at least one opening.

15 8. A longitudinal adjuster according to Claim 7, wherein the opening bordered
by the guide surface has at least one trapezoidal cross section.

9. A longitudinal adjuster according to Claim 1, wherein the longitudinal
adjuster is in combination with the vehicle seat.

20 10. A longitudinal adjuster according to Claim 2, wherein the locking element
comprises a plate having pairs of teeth respectively reaching through the openings of
the second seat rail for interacting with the notches of the first seat rail.

25 11. A longitudinal adjuster according to Claim 10, wherein at least some of
the teeth are arranged in a longitudinal series having outer teeth which are
respectively at ends of the series and inner teeth which are positioned between the
outer teeth, and at least one of the outer teeth differs in width from the inner teeth.

30 12. A longitudinal adjuster according to Claim 3, wherein the locking element
comprises a plate having pairs of teeth respectively reaching through the openings of
the second seat rail for interacting with the notches of the first seat rail.

13. A longitudinal adjuster according to Claim 12, wherein at least some of the teeth are arranged in a longitudinal series having outer teeth which are respectively at ends of the series and inner teeth which are positioned between the outer teeth, and at least one of the outer teeth differs in width from the inner teeth.

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14. A longitudinal adjuster according to Claim 2, wherein for at least one opening of the openings in the second seat rail, the marginal area of the second seat rail comprises a guide surface which borders the at least one opening and extends obliquely with respect to the lengthwise sliding of the second seat rail relative to the
10 first rail, so that the guide surface is operative for guiding the locking element into the at least one opening.

15. A longitudinal adjuster according to Claim 3, wherein for at least one opening of the openings in the second seat rail, the marginal area of the second seat rail comprises a guide surface which borders the at least one opening and extends obliquely with respect to the lengthwise sliding of the second seat rail relative to the first rail, so that the guide surface is operative for guiding the locking element into the at least one opening.

20 16. A longitudinal adjuster according to Claim 5, wherein for at least one opening of the openings in the second seat rail, the marginal area of the second seat rail comprises a guide surface which borders the at least one opening and extends obliquely with respect to the lengthwise sliding of the second seat rail relative to the first rail, so that the guide surface is operative for guiding the at least one tooth into
25 the at least one opening.

17. A longitudinal adjuster according to Claim 16, wherein the at least one opening has at least one trapezoid cross section.

30 18. A method of manufacturing a longitudinal adjuster for a vehicle seat, with the longitudinal adjuster having a first seat rail, a second seat rail that can be slid lengthwise relative to the first seat rail, and at least one locking element movably borne in the second seat rail, with the locking element reaching outward at least in

predetermined areas through openings of the second seat rail and cooperating with notches of the first seat rail to lock the longitudinal adjuster, the method comprising:

causing at least one marginal layer of the locking element to be softer than at least one marginal area selected from the group consisting of:

5 a marginal area of the second seat rail, wherein the marginal area of the second seat rail borders the openings, and

a marginal area of the first seat rail, wherein the marginal area of the first seat rail borders the notches.

10 19. A method according to Claim 18, wherein the causing of the marginal layer of the locking element to be softer includes decarburizing the marginal layer of the locking element.

15 20. A method according to Claim 19, further comprising hardening the entire locking element, wherein the decarburizing of the marginal layer of the locking element follows the hardening of the entire locking element and is carried out so that the marginal layer of the locking element contains less carbon per unit area than a core of the locking element.